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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,742	02/18/2004	Bradley L. Edgar	38578-0015 US	1665

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EXAMINER	
TRAN, BINH Q	
ART UNIT	**PAPER NUMBER**
3748	

DATE MAILED: 08/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/782,742	EDGAR ET AL.	
	Examiner	Art Unit	
	BINH Q. TRAN	3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *05/13/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-3, 5-13, 15-16, and 19-24 are rejected under 35 U.S.C. 102 (b) as being anticipated by Taniguchi (Patent Number US 5,716,586).

Regarding claims 1, 5, 9-13, 16, and 19-20, Taniguchi describes in the specification and figures an apparatus and method for reducing particulate emissions from an internal combustion engine (20) comprising: at least one particulate control device (2), at least one inlet pipe (3) bring

exhaust from the engine to the particulate control device, at least one outlet pipe (4) coupled to an outlet on the particular control device, piping to connect the engine and inlet pipe, means for regenerating the particulate control device (e.g. 10, 11, 13, 14) in place while the engine is not operating, means for determining if the engine is operating, and control means to start the means for regenerating, after the engine has stopped running (e.g. See Figures 1-18; col. 8, lines 41-67; cols. 9-10, lines 1-67; and col. 11, lines 1-63).

Regarding claims 2-3, Taniguchi further discloses that means for regenerating comprises an electric heater (11), air pump (13), a fluid connection between a pump outlet and a point upstream of the electric heater, and a burner (11) system (e.g. See Figures 1-18; col. 7, lines 39-67; and col. 8, lines 1-33).

Regarding claims 6 and 15, Taniguchi further discloses that means for determining if the engine is on or off is selected from one of the following: a) a switch b+, b) an oil pressure sensor or switch, c) a speed or RPM sensor, d) a backpressure sensor or switch, e) a thermocouple located in the exhaust stream, or f) any of combination of the above (e.g. See Figures 1-18; col. 8, lines 41-67; cols. 9-10, lines 1-67; and col. 11, lines 1-63).

Regarding claim 7, Taniguchi further discloses a catalyst (11a) on the particulate control device to allow for continuous regeneration of the device anytime the exhaust temperature is sufficiently high (e.g. See col. 19, lines 1-48).

Regarding claim 8, Taniguchi further discloses that particulate control device comprises a diesel particulate filter (2).

Regarding claim 21, Taniguchi further discloses that a pressure switch or sensor (e.g. 7, 17) to alert the operator that excessive back pressure levels have been reached, signaling the need for system inspection and service (e.g. See Figures 1-18; col. 7, lines 39-67; and col. 8, lines 1-33).

Regarding claim 22, Taniguchi further discloses that control system activates contaminant remover after a selected time delay (e.g. See Figure 36; col. 21, lines 10-67; and col. 22, lines 1-25).

Regarding claim 23, Taniguchi further discloses that at least one sensor positioned to determine if the engine is operating (e.g. See Figures 1-18; col. 7, lines 39-67; and col. 8, lines 1-33).

Regarding claim 24, Taniguchi further discloses that regeneration sequence operating for a time sufficient so that a level of particulate matter remaining in the filter causes the maximum particulate capture rate (e.g. See Figures 1-18; col. 8, lines 41-67; cols. 9-10, lines 1-67; and col. 11, lines 1-63).

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 14, 17-18, 25-28, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi in view of Fukuda et al. (Fukuda), (Patent Number 5,822,977).

Regarding claims 14 and 26, Taniguchi discloses the invention as recited above; however, Taniguchi fails to disclose at least one bypass valve positioned to direct exhaust flow away from the filter and into an alternative flow path when the valve is open.

Fukuda teaches that it is conventional in the art, to use a bypass valve (e.g. 106, 118a-b) positioned to direct exhaust flow away from the filter (107a-b) and into an alternative flow path when the valve is open (See figure 1; col. 4, lines 59-67; and col. 5, lines 1-34).

It would have been obvious to one having ordinary skill in the art at the time the invention was made, to use a bypass valve positioned to direct exhaust flow away from the filter and into an alternative flow path of Taniguchi, as taught by Fukuda for the purpose of regenerating the particulate filter of an internal combustion engine, so as to reduce the poisoned materials in the exhaust gas of the lean-burn engine, and further improve the performance of the engine and the efficiency of the emission device.

Regarding claims 17-18, 25, and 30, Fukuda further discloses that regeneration sequence initiated, wherein the filter remains at an elevated temperature within about 20-30 ^{0}C of exhaust temperature at shutoff , and exhaust gas from the engine has a temperature in a range of about 170 to 270 ^{0}C (e.g. See col. 9, lines 5-53).

Regarding claims 27-28, Taniguchi further discloses that means for regenerating comprises an electric heater (11), air pump (13), a fluid connection between a pump outlet and a point upstream of the electric heater, and a burner (11) system (e.g. See Figures 1-18; col. 7, lines 39-67; and col. 8, lines 1-33).

Claims 4 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi in view of Nobue et al. (Nobue) (Patent Number 5,195,317).

Regarding claims 1 and 29, Taniguchi discloses the invention as recited above; however, Taniguchi fails to disclose that means for regenerating comprises a microwave heating device.

Nobue teaches that it is conventional in the art, to regenerate a particulates filter by using a microwave heating device (12) (See col. 5, lines 59-67; and col. 6, lines 1-67).

It would have been obvious to one having ordinary skill in the art at the time the invention was made, to use a microwave heating device of Taniguchi, as taught by Nobue for the purpose of regenerating the particulate filter of an internal combustion engine, so as to reduce the poisoned materials in the exhaust gas of the lean-burn engine, and further improve the performance of the engine and the efficiency of the emission device.

Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of five patents:

Oishi et al. (Pat. No. 4404795), Hoppenstedt et al. (Pat. No. 5388400), Sherman et al. (Pat. No. 6422001), Nobue et al. (Pat. No. 5423180), and Hirota et al. (Pat. No. 6644023) all discloses an exhaust gas purification for use with an internal combustion engine.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Binh Tran whose telephone number is (571) 272-4865. The examiner can normally be reached on Monday-Friday from 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reach on (571) 272-4859. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BT
August 04, 2005

Binh Q. Tran
Patent Examiner
Art Unit 3748